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THE CONSEQUENCES OF EARLY BILINGUALISM IN COGNITIVE DEVELOPMENT AND PERSONALITY FORMATION.

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THIS PAPER (WHICH WAS PREPARED FOR A SYMPOSIUM ON "THE STUDY OF PERSONALITY" AT RICE UNIVERSITY, HOUSTON, NOVEMBER, 1966) REVIEWS THE ADVANCES MADE BY INTERDISCIPLINARY LINGUISTIC RESEARCH INTO THE EFFECTS OF EARLY BILINGUALISM. USING THE SAUSSUREAN MODEL OF THE LINGUISTIC SIGN, A DISTINCTION IS MADE BETWEEN "COORDINATE" AND "COMPOUND" BILINGUALS. COMPOUND BILINGUALISM TENDS TO RESULT WHEN THE TWO LANGUAGES ARE ACQUIRED IN A SPEECH COMMUNITY OFFERING THE CHILD EQUAL AND SIMULTANEOUS EXPOSURE TO THE TWO LANGUAGES AND WHERE THE SOCIAL FUNCTIONS OF THE TWO LANGUAGES ARE MINIMALLY DIFFERENTIATED. THE MORE TYPICAL BILINGUAL SITUATION IS ONE IN WHICH ONE OF THE LANGUAGES IS SOCIOLOGICALLY DOMINANT AND IN WHICH THE SOCIAL FUNCTIONS OF THE TWO LANGUAGES ARE DIFFERENT. WHEN BILINGUALS ARE STUDIED IN CONTEXTS WHERE THEIR BILINGUAL OR BICULTURAL BACKGROUND DOES NOT AUTOMATICALLY ASSIGN THEM LOWER STATUS WITHIN A MONOLINGUAL COMMUNITY, IT CAN BE SHOWN "THAT BILINGUALISM IS ASSOCIATED WITH AND MAY IN FACT BE FACILITATIVE OF SIGNIFICANTLY SUPERIOR PERFORMANCES ON BOTH VERBAL AND NON-VERBAL INTELLIGENCE TESTS." CASES OF BILINGUAL PSYCHOPATHOLOGY CAN BE TRACED TO A "CRISIS IN SOCIAL AND PERSONAL IDENTITY ENGENDERED BY ANTAGONISTIC ACCULTURATIVE PRESSURES DIRECTED ON A BICULTURAL COMMUNITY BY A SOCIOLOGICALLY DOMINANT MONOLINGUAL SOCIETY." APPENDED TO THIS PAPER IS A SIX-PAGE BIBLIOGRAPHY ON BILINGUALISM. (JD)

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THE CONSEQUENCES OF EARLY BILINGUALISM IN COGNITIVE DEVELOPMENT AND PERSONALITY FORMATION [1]

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INTRODUCTION.

I have not chosen to survey in this paper the full range of research devoted to language and verbal behavior and its possible contributions to the study of personality. The reason for the choice is not far to seek. The research interests and findings of the relatively new fields called 'psycholinguistics' and 'sociolinguistics', and the older one called 'ethnolinguistics', are vast and varied; and as a whole, the contributions to the study of personality are more promising in future potential than in present fact.

Rather the focus will be on one topic, bilingualism and the psychology of the bilingual, and more specifically, on the matter of the consequences of early bilingualism in cognitive development and personality formation. In so doing, I will be treating the topic as an exemplar of the significant advances which interdisciplinary research has yielded in the study of language behavior, and in this case, in a problem which I believe does have considerable import for the theory of personality formation.

The problem is neither novel nor trivial, and has the advantage of a ready translation into popular terms: Partly as a consequence of its obvious relation to communicative difficulties and educational problems in large modern societies, the effects of bilingualism have come to be the subject for much debate. The collective sentiment about bilingualism in the United States has been at best ambivalent, a manifestation of the Anglo-American "melting pot" ethos. Educators, as a group which must cope with the practical problems of ministering to a population which contains a sizeable number of bilingual children, have been less ambivalent; indeed, their majority view is that bilingualism (as distinct from second-language learning in the school) is a damaging experience for the child, one which poses hurdles to the child's intellectual development and later emotional

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adjustment. What is interesting is that their arguments are usually couched in such a manner to lead one to the conclusion that it is the simple fact of "having too much in one's head" , that there is some sort of deleterious conflict which results from the bilingual child's being inputted with two different linguistic codes, and that this linguistic conflict produces the very real evidence for intellectual deficit and personality problems which they are able to adduce in support of their contentions. (Let this be clear from the start: competent recent surveys of the literature (e.g., Darcy 1953, 1963; Jensen 1962; Peal and Lambert 1962) do reveal that there is an association between bilingualism and lower intelligence ratings as well as certain types of personality dysfunction, when "somehow comparable" groups of monolinguals and bilinguals are compared.) And prior to 1950, there was little empirical data which could be drawn upon to refute this view, let alone any sophisticated experimental or interpretive research aimed at testing the notion that bilingualism itself was the cause of some of the evils cited.

My purpose here is to apprise the reader of two major fallacies in the popular argument: (1) that of interpreting an observed association in cause-and-effect terms, i.e. that because P is observed to be associated with Q, it is necessarily true that P causes Q; and (2) that the majority of "somehow comparable" groups of monolinguals and bilinguals which have been compared as if bilingualism were the critical variable, are in fact not "otherwise equally matched". To do so will be to explain how recent interdisciplinary research on bilingualism has produced conclusive results which oblige us to reject a linguistic etiology as an explanation for some of the cognitive and personality disorders which are associated with bilingualism.

THE CONCEPTS 'INTERFERENCE' AND 'DOMINANCE'.

It is a psycholinguistic truism that all children, unless thwarted by various organic defects (e.g., deaf-mutism) or by severe functional disorders (e.g., infantile autism), go through a developmental process characterized by certain fixed maturational sequences, and in the course of socialization and enculturation, begin to speak the language of the community wherein they live. There are unfortunately no statistics on the incidence in different societies concerning what at least some Americans intuitively feel to be an anomaly in this process of primary language

acquisition, that in which the child learns not one, but two (or more) languages and thereby becomes a bilingual. The adult who emerges from this experience, if he continues to speak his two childhood languages, will most likely display a native-speaker's proficiency in both languages; that is, there will be in his linguistic performance no immediately observable interference in speech production in either language such as could be attributed to code dominance by the other. Such a proficient bilingual is believed to be the exception rather than the rule in the world's population of bilinguals, and it is instructive to contrast him with his more numerous bilingual fellows, so-called 'subordinate bilinguals' whose backgrounds and actual linguistic performance betray a differential competence in their two languages. (In many cases, the differential competence stems from having learned a secondary language at some time subsequent to primary language acquisition.)

Although we will not be concerned with the subordinate bilingual in this study, it will be useful here to cite the "foreign accent" and "grammatical mistakes" in his secondary language as examples of what the concepts interference and dominance may refer to. If we examine the English spoken by native-speakers of German, and the German of native-speakers of English, we may discover in their speech deviations from native phonetic norms and syntactic rules which suggest "imperfect mastery" of the secondary language. Examples (i) and (ii) below show deviations from English models which a native-speaker of German might produce:

(i) phonological ("foreign accent"): for the model 'This is a fine state of affairs.'

[dɪsɪsəfɑ̝ɪn̆stɛ:təfə?fɛ:ɐ̝s] , cf. acceptable English
[ðɪsɨzəfa̝ɪnstɛ̝ɪtəvəfɛə̯z].

(ii) grammatical ("grammatical errors"):

*When I walk the street along., cf. acceptable English
When I walk along the street.

Examples (iii) and (iv) show deviations from German models which a native-speaker of English might produce:

(iii) phonological ("foreign accent"): for the model 'Sprechen Sie französisch?'

[sprɛkənzɪ̯ifrænzozɪš] , cf. acceptable German

[šprɛxənzi:frantsö:zɪš].

(iv) grammatical ("grammatical errors"):

*Er kommt entlang die Straße., cf. acceptable German

Er kommt die Straße entlang.

The observable deviations of the non-native-speaker's replicas from the acceptable models as produced by a native-speaker (e.g., *{When I walk the street along.} : {When I walk along the street.}) are instances of interlingual interference. These examples represent "conflict" between the phonological and grammatical rules ("habits") specific to the two languages, and the deviations themselves reveal a carry-over of linguistic habits from the (native) primary language into the secondary language. This interference in the secondary language is said to be symptomatic of dominance by the linguistic habits of the primary language.

It is heuristic to examine the different meanings which the terms dominance and interference carry, depending upon the interests of the investigator: Given a community where two languages are in contact, the linguist will be interested in determining what subsequent changes in those languages can be attributed to this contact; many of the changes thus implicated would traditionally be called 'linguistic borrowing'. If the linguist speaks of dominance, it will refer to one of the languages being the principal donor and will imply that the other is the principal recipient of such interchange. The anthropologist or sociologist will be more concerned with the fact of language contact itself and with the groups of speakers so involved. They might focus on the demography of language usage and its consequences for social identities; on the social structure of the bilingual community; and on the relationship of bilingualism to intergroup communication and socio-cultural change. If they speak of dominance, it will refer to the relative status of the two languages in contact, and their differing social functions. The psychologist typically will be more interested in the effects of bilingualization on the individuals thus enmeshed in language contact. When he speaks of dominance, it may refer to the realm of language behavior as measured by

the speaker's relative competence and performance in his two languages. One central concern is how the bilingual acquires codes for two languages and then the extent to which he can utilize them as independent systems without interference and conflict between the two. This leads quite naturally to the special topics treated below: investigating the effects of bilingualism on cognitive development and personality formation.

Measuring linguistic and sociolinguistic dominance are relatively uncomplicated matters. The former seeks merely to determine for the bilingual whether, in speaking either language, there are any observable linguistic interference phenomena of the sorts exemplified in cases (i-iv) above, such as might be attributable to code-dominance in the other language. (Various linguistic techniques and applications are contained in e.g., Diebold 1963; Haugen 1950, 1956; Lambert 1955; Mackey 1962, 1965, 1966; Weinreich 1953, 1957.) The output of such a comparative analysis of the bilingual's performance in his two languages, however, allows only of a decision as to whether he is 'subordinate' or 'proficient' in the senses mentioned above. Linguistic techniques alone cannot determine whether the proficient bilingual has differential competence in his two languages that might affect other behaviors depending upon which of the two languages was involved in less readily observable cognitive processes. Thus, if an apparently proficient German-English bilingual were basing his expectancies about role behavior on the German model in example (xi) below, while speaking English in an American community, a linguistic analysis probably could not tap the cognitive conflict he would be experiencing (deriving from interference between models (xi) and (xii)).

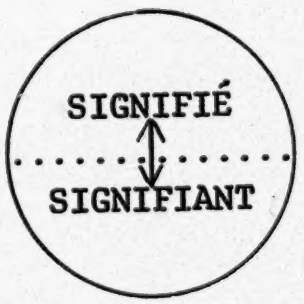
A sociolinguistic analysis, investigating language usage in a bilingual community, could speedily resolve the question concerning sociological dominance (e.g., Barker 1947, 1951; Diebold 1961; Mackey 1966). The results of such an analysis would presumably include statements about the different social contexts in which the two languages were used (their 'social functions'); the attitudes concerning that usage, as evidenced in 'language loyalty' and maintenance of a less dominant language; and other relevant data about the communication network within and enmeshing the bilingual community (see e.g., Fishman et al. 1966; Gumperz 1962; Haugen 1966; Mackey 1966).

Determining psycholinguistic dominance is more problematic. To

begin with, a typology of bilinguals which merely recognizes a continuum of linguistic interference from zero (in the proficient bilingual) to "heavy" (in the case of a subordinate bilingual with very imperfect control of a secondary language) is too simplistic for our purposes. More revealing is to examine the potentially different types of linkage between interlingual word-pairs in the bilingual's speech and the objects and concepts to which they refer. This requires two procedures: (1) a contrastive semantic analysis of the bilingual's two languages, employing traditional linguistic techniques as well as certain psycholinguistic techniques to be discussed below; and (2) a sociolinguistic analysis of the differential social functions of the two languages and, in particular, a specification of the possibly separate social contexts in which the two languages were first learned and then later used. Once this is done, we find that it is necessary to recognize two distinct "types" of proficient bilinguals: compound bilinguals and coordinate bilinguals. (The theoretical distinction itself is an old one; the specific terms 'compound' and 'coordinate' are taken here in the sense proposed by Ervin and Osgood 1954 and Weinreich 1953, which corresponds closely to the technical meaning they now carry in psycholinguistic research.)

Linguistically, the distinction between these two types can be represented by using the Saussurean model for a linguistic sign, a complex behavioral unit which is variously called a 'word-and-its-object', a 'label-and-its-referent', etc.; there are many synonymous terms. De Saussure's model (v) simply shows the learned linkage between the substance of a given speech formative (typically a 'word', 'morpheme',

(v) a linguistic sign:



or 'lexeme' in linguistic terminology) and its denotative and connotative meanings (= 'meaning', 'concept', 'referent', 'designatum', etc.) In de Saussure's terminology (1915), the signifiant is the physical property of the sign; the signifié, 'that which is signified', is the associated

meaning. For English, we find a speech formative with the acoustic (physical) image [dɔg], which is written dog; this signifiant is linked to an array of meanings, its signifié, which includes reference to tokens of the animal species Canis familiaris, as well as to various learned and idiosyncratic metaphorical extensions of this central denotative meaning to other objects. The signifié of [dɔg] will also include the connotative meanings associated with dogs, and these will include highly conventionalized components (e.g., deriving from culturally determined expectancies and values about these animals) as well as idiosyncratic components (e.g., that you may have an aversive reaction to dogs as a result of past unpleasant experiences with them, whereas your friend may not).

For the compound bilingual it is assumed that there is a more or less unitary semantic structure, such that many formatives from his two languages can be said to be true interlingual synonyms. This merging is shown in (vi) where a proficient German-English bilingual's signifiants Hund [hunt] and dog [dɔg] have a common signifié:

(vi)

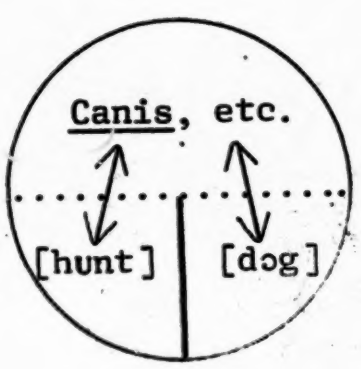
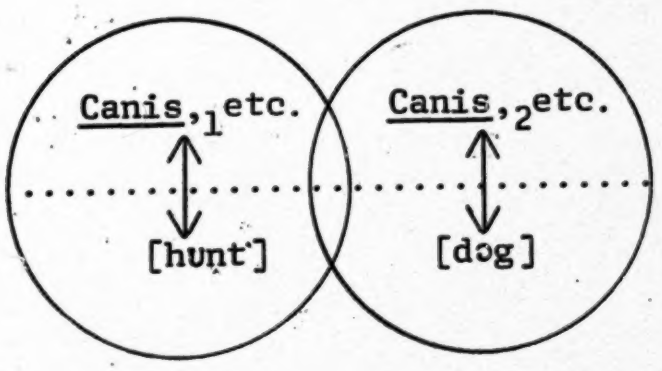


Figure (vii) depicts the separate linkage assumed for the coordinate bilingual:

(vii)

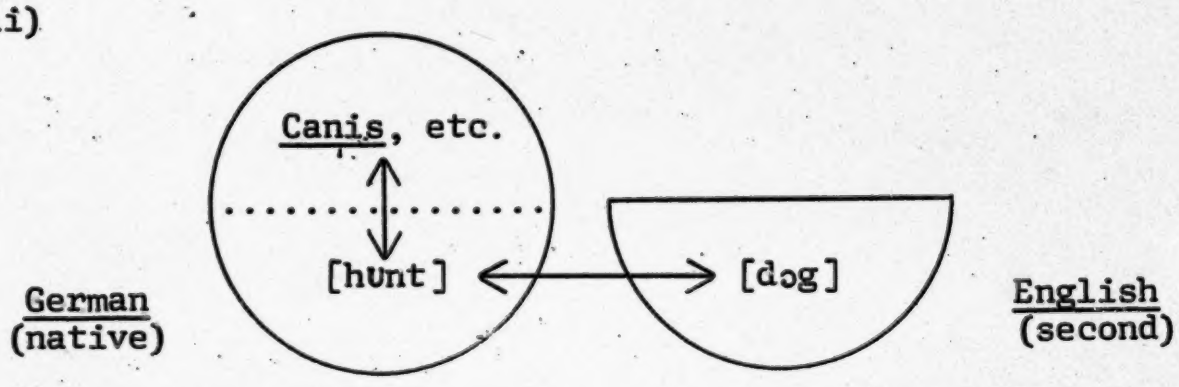


In the case of the coordinate bilingual there is not necessarily an identity between the signifiés of the semantically similar words Hund and dog. Moreover,

it is not necessarily so that the coordinate bilingual will develop facility in rapid code-switching, or that he will be adept in the recoding skill we call 'simultaneous translation' (cf. Lambert, Havelka, and Gardner 1959; Paneth 1957). Thus in (vii) above, although there may well be an identity in central denotative meaning to Canis familiaris, the metaphorical extensions, associations, and connotative meanings might differ significantly in the two languages.

In this paper the focus will remain on the proficient bilingual who has acquired these word-meaning linkages in childhood, and "naturalistically" as opposed to later instruction in a class-room context. (There is general agreement that the process of later secondary language acquisition is qualitatively distinct from primary language acquisition, regardless of whether the latter involves one or two languages; cf. Lane 1962; Lambert 1963.) But it is interesting to contrast one type of subordinate bilingual with the compound and coordinate. This is the "type", which is often associated with formal second-language instruction, in which typically the incipient bilingual first develops a set of "translation equivalences" between his native and the target second language. Figure (viii) shows how these equivalences are first established between linguistic signs in the native language (here German) and signifiants in the foreign language (here English):

(viii)



We could figuratively describe this type or stage of subordinate bilingualism as being "compound" (cf. (vi)) since there is, strictly speaking, a unitary semantic structure. But this apparent unity does not derive from two merged semantic structures which are potentially separable; the unitary content system is German, not German-English. Were we to analyze the connotative meanings and associations of the individual English words which the native German-speaker had acquired, we would find that they would

deviate from a native English-speaker's, in the direction we would expect to find as modal for the German translation equivalents. This expectation is confirmed by several studies employing the 'semantic differential' instrument (e.g., Ervin 1961a; Lambert, Havelka, and Crosby 1958; Maclay and Ware 1961; Tanaka, Oyama, and Osgood 1963; Triandis and Osgood 1958). The theoretical consequences and observable effects of this sort of semantic interference in perception and cognition have been discussed in many studies (see e.g., Campbell 1964; Doob 1957; Triandis 1964).

In point of fact, however, we must also reject (or at least modify) the notion of a completely unitary semantic structure for compound bilinguals as well. If nothing else has been learned from two decades' discussion of the 'Whorfian hypothesis', it is the realization that languages do differ greatly one from another (1) in their selection of criterial semantic features which must be grammatically and/or lexically marked, and (2) in their hierarchical lexical groupings, specifically in the ways in which superordinate categories are composed (see Bouman 1952/3; Carroll 1963; Diebold 1965, section 8; Fishman 1960). (It will remain for a more sophisticated 'ethnoscience' to establish just what are the limitations on variability in these dimensions between languages; see the papers in Romney and D'Andrade, eds. 1964.) Thus a careful contrastive analysis of even such closely related languages as German and English suggests the possibility for semantic interference and attendant cognitive conflict for compound bilinguals. For a simple case of differential linguistic encoding of meanings, consider examples (ix) and (x) below:

(ix) recoding from German to English:

German gemütlich = English { ? }

German Gemütlichkeit = English { ? }

(x) recoding from English to German:

English you (singular) = German { du / Sie (singular) }

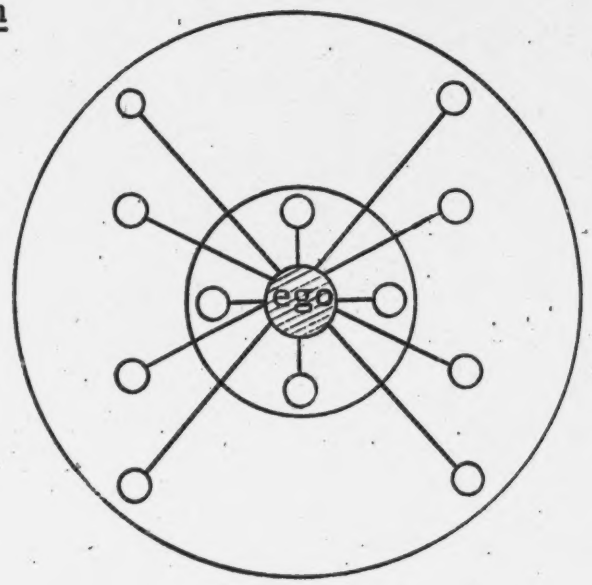
In the case of (ix) English has some sort of lexical inadequacy: the terms

gemütlich ~ Gemütlichkeit have fairly precise meanings in a German speech-community and carry very important affective connotations of 'affability' and 'empathy' useful for linguistic specification of interpersonal relations; but there are no translation equivalents in everyday English vocabulary (although equivalents may be found in some other languages, e.g., Spanish simpático (adj.) ~ simpatía (noun)). Example (x) shows an interesting discrepancy in the available labels for the second-person singular category in pronouns (the alter in a face-to-face dyad) in which German has two possible translation equivalents, du ("intimate") and Sie ("formal"), corresponding to the single English term you. Pages could be devoted to describing the linguistic consequences (in terms of different obligatory grammatical inflections) as well as the sociolinguistic implications (in terms of specifying the social distance between two speakers; see e.g., Brown 1965, Chap. 2; Brown and Gilman 1960) which devolve upon selecting du as opposed to Sie in German.

A far more subtle type of interlingual misidentification is illustrated by examples (xi) and (xii) below; the case the examples concern is of special interest in this paper since it is intimately related to the stereotypes about personality and national character which German and at least American (if not British) nationals harbor about each other. As any German-English dictionary will confirm, German Freund and English friend are given as translations one for the other as if the terms were bilingual synonyms. (Historically speaking, the two words are of course 'cognates'.) And similarly German Bekannte(r) is offered as an equivalent of English acquaintance. In both German and American society a comparable number of the interpersonal contacts established outside one's kindred are labelled with one or the other of the two terms available in each language (Freund : Bekannte(r) :: friend : acquaintance). But are these interlingual pairs in fact equivalent? The German national listening to an American speaking (even fluent) German will quickly intuite that they are not. And if he is xenophobic, the German may well conclude from the American's ubiquitous usage of Freund that Americans are brash and presumptuous in their interpersonal relations, and either shallow or insincere in their expression of "friendly" sentiment. Conversely the American, upon perceiving it, may attribute this communicative static to his German host's being "too stand-offish" or "formal". Thus the American in Germany who returns to his German university after a weekend skiing in

Garmisch and announces Ich habe ja viele neuen Freundschaften geschlossen, will elicit from his German colleagues a response of firm and even antagonistic disbelief; for them, in the duration of a single weekend, regardless of one's affability (or Gemütlichkeit), it would typically be possible only to report Ich habe ja viele neuen Bekanntschaften gemacht. The discrepancy emerges in the role-network diagrams which follow. In both the German (xi) and American (xii) models, a propositus (= Ego), the speaker, is shown surrounded by an identical number of alters with whom he has traffic. The closeness of each dyad is also constant between the models; the degree of closeness is indicated by the relative length of the lines connecting the various Ego-alter dyads: greater length specifying greater social distance, such as might be quantified by testing for affect, measuring amount of interaction, etc.

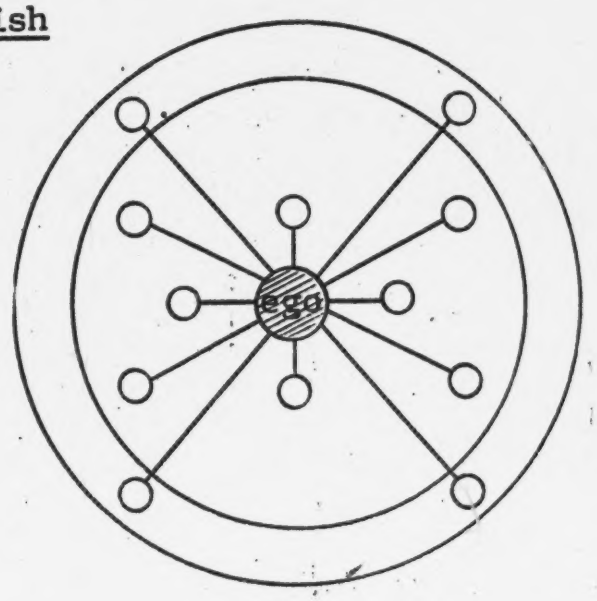
(xi) German



Labels for alters:

-inner circle = Freund
-outer belt = Bekannte(r)

(xii) English



Labels for alters:

-inner circle = friend
-outer belt = acquaintance

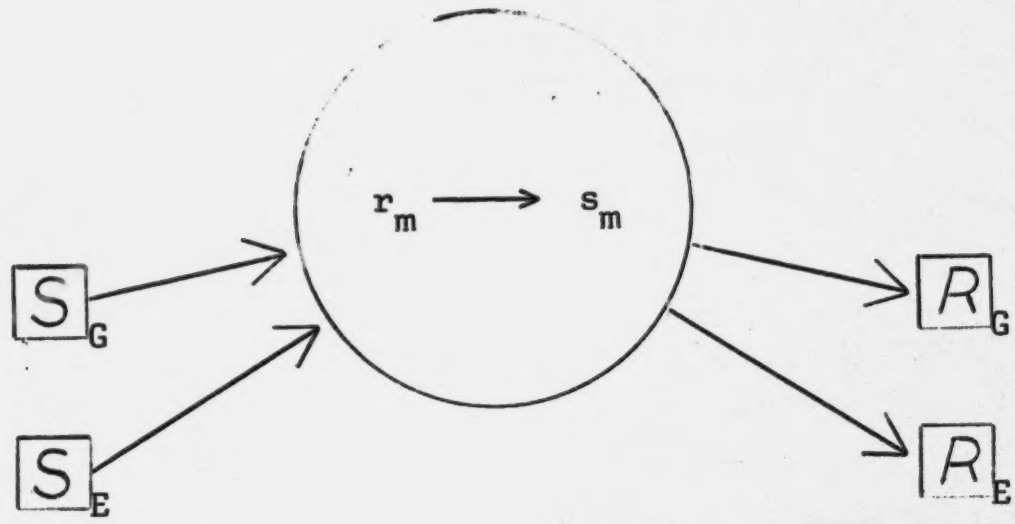
Cursory inspection will identify the problem. The range of reference for German Freund (and Freundschaft 'friendship') is much more restricted than it is for the accepted English translation equivalent friend. Every German's Freund in comparable situations in American society would be called a friend. The converse does not hold; many American friends would in comparable situations in German society be Bekannten. What cannot be so easily shown graphically are the differences in emotional meaning which are implied by this discrepancy; but here the prevarications of advertizing help us. The travel-ad in a German magazine which enjoins the reader to Schließen Sie Freundschaft! ('Make friends!') in some foreign country, elicits a different response than one which "correctly" reads Machen Sie Bekanntschaft! ('Become acquainted!'). (A somewhat analogous affective distinction is manipulated by American realtors who beguilingly extend the term home into linguistic contexts where most of us would say house.) Among other connotations, Schließen Sie Freundschaft entails cultural expectations of Gemütlichkeit (see (ix)), which is at best optionally extended to the German tourist abroad. The obligatory semantic restrictions which operate in these German phrases are themselves interesting: schließen (used with Freundschaft) has strong connotations of entering into some binding contract which machen (used with Bekanntschaft) has not.

The sociolinguistic concomitants of bilingualism appear to be crucial. For the distinction between compound and coordinate, it is immediately apparent that the former type tends to result when the two languages are acquired in a 'fused' social context, i.e., where the speech community offers the child equal and simultaneous exposure to two languages, and the later social functions of the two languages are minimally differentiated. It is also apparent that this type of bilingual community is relatively rare cross-societally, and when it exists, tends to be unstable through time. For the more typical sociolinguistic structure of the bilingual community is one in which one of the languages is sociologically dominant and in which the social functions of the two languages (e.g., in the home as opposed to in the school) are maximally differentiated. In the latter more prevalent type of bilingual community, the social contexts and functions of the two languages are said to be 'separated'. (The sociolinguistic opposition 'fused' : 'separated' is developed in Lambert, Havelka, and Crosby 1958.) And it appears that this separated sociolinguistic

background tends to produce coordinate bilinguals. The welter of further variables suggested by sociolinguistic analysis of the bilingual community is extensive. But it is not clear to date what implications some of these variables have for research with bilingual speakers. For example, does a separated context imply that the bilingual speech community is also bicultural? and conversely, that a fused context implies relative cultural homogeneity within the bilingual community? What are the effects of language loyalty sentiments in a bicultural bilingual community wherein the sociologically dominant language is not the preferred one? In the last instance, what if there are (or are not) strong acculturative pressures which portend adaptive language shift and eventual monolingualism in successive generations? These and many other salient sociolinguistic variables have been treated in a wide range of studies: e.g., Bossard 1945; De Boer 1952; Diebold 1961; Fishman et al. 1966; Gumperz 1964; Herman 1961; Hoffman 1934; Pieris 1951; Soffietti 1955; Sapon 1953. What remains to be demonstrated is the significance of these sociolinguistic variables for the psycholinguistic investigation of the bilingual speaker.

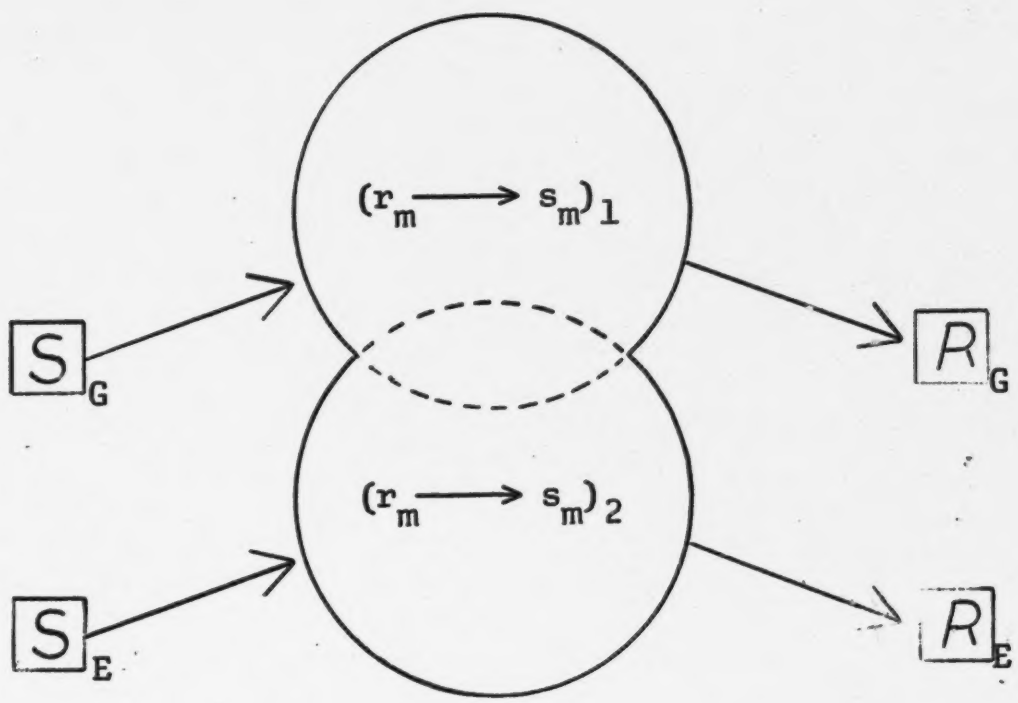
The psycholinguistic evidence for distinctive types of proficient bilinguals is strong. Osgood and Ervin's (1954) original proposition was that language acquisition contexts, depending upon whether fused or separated, should result, during the process of language acquisition, in unitary representational mediators for interlingual synonyms in the former (= compound bilingualism), but distinct representational mediators for the latter (= coordinate bilingualism). Examples (xiii) and (xiv) illustrate Osgood and Ervin's conceptualization and are modified versions adapted from their 1954 statement. (The partial congruences with the Saussurean models (v - viii) are obvious.) G-subscript = German; E-subscript = English; $[S]_G$ and $[S]_E$ are potential interlingual synonyms. (For explanation of the learning theory processes represented in the models and further explication of the notation, see Diebold 1965: 218f.; Osgood 1963a: 249-60; Osgood 1966.)

(xiii) compound representational mediators



Comments: the association of S_G and S_E with the mediational response sequence ($r_m \longrightarrow s_m$) is equivalent; the ($r_m \longrightarrow s_m$) sets are unitary, having been acquired in a fused context.

(xiv) coordinate representational mediators



Comments: the ($r_m \longrightarrow s_m$) sets are not necessarily identical, having been acquired in separated contexts.

Much of the research seems to suggest that coordinate bilinguals (see (xiv) above), having learned and then using their two languages in separated contexts, have a correspondingly greater functional separation of their two linguistic systems as well as greater functional separation of the cognitive processes and other language-mediated behavior which relate to differential encoding of experience specific to one or the other language. Conversely, the compound bilingual seems to exhibit a greater merging of these systems and processes. Especially significant as evidence are the studies of semantic shifting and differential word associations which compare bilinguals with monolingual speakers of each of the two languages represented in him. The psycholinguistic evidence from these studies suggests that compounds have an intermediate semantic structure, whereas coordinates have associated with each of their languages semantic structures which are only slightly skewed from those of monolingual speakers of those languages. (See e.g., Ervin 1961a; Hofstaetter 1955; Jakobovits and Lambert 1961; Kolers 1963; Lambert, Havelka, and Gardner 1959; Lambert and Moore 1966; Lenneberg and Roberts 1956; Weinreich 1958.) To be sure, most of this research concerns different aspects of the signifiant-signifié linkage, e.g. codability and word associations. But there is also some evidence that recall and higher cognitive activities are differentially affected by which language the bilingual subject is obliged to use in the experimental task presented him; see e.g., Ervin 1961b; Peal and Lambert 1962. How much of these differences in coordinate bilinguals is to be explained by differential cognitive experience in his two languages (e.g., that mathematical calculations are performed exclusively in one language), and how much to an actual underlying (but undetectable) dominance in one language, pose knotty problems for future psycholinguistic research.

The most compelling evidence for differential dominance and the distinction between types of bilinguals comes from research into adventitiously acquired language disorders, especially the categories of organically-based disturbances collectively called aphasia. (For a typology of these disorders, see Schuell and Jenkins 1959; recent general references to aphasia which contain sections dealing with bilingual aphasics include: Brain 1965; Goldstein 1948; Marx 1966; Weisenberg and McBride 1935; and several papers in de Reuck and O'Connor, eds. 1964.) It has long been recognized that some bilingual patients,

after brain damage or during deteriorative senility, exhibit differential impairment to their two languages. If the literature on bilingual aphasia is reviewed (see e.g., Leischner 1948), there is considerable agreement in the reporting of individual case histories, that bilinguals who are demonstrably subordinate show greater deficit in their secondary language; thus e.g., Bychowski 1919; Goldstein 1933; Herschmann and Pötzl 1920; Kauders 1929; Minkowski 1927; Pitres 1895; Pötzl 1930; Stengel and Zelmanowicz 1934. The interpretations of these observations vary; but most agree that the motor-productive and sensory-receptive habits associated with primary language acquisition (given continued usage of that language) confer greater resistance to language pathology after an aphasia-producing trauma, than is the case with the later-learned habits associated with a secondary language. There is also some evidence from these same sources that demonstrably proficient bilinguals (especially those who had simultaneously acquired two languages in childhood) tend to suffer equal damage to both languages. Presumably then, the explanation for the notion of greater stability of earlier-learned habits has some relevance, and must be addressed within the framework of a maturational theory of language acquisition; see e.g., Lenneberg 1964, 1966. The most significant discovery was made, however, when Lambert and Fillenbaum (1959) reexamined case histories of proficient bilinguals who were aphasic, and found that compound and coordinate bilinguals were differentially impaired by aphasia; see also Fillenbaum, Jones, and Wepman 1961; Wepman and Jones 1966. In the cases thus analyzed, in which reliable information was available concerning the extent of deficit and/or the extent of recovery, Lambert and Fillenbaum found that compound bilinguals suffered equal deficit in their two languages while coordinates suffered differential deficit. The question thus posed about which of the coordinate's two languages was most affected implicates a number of variables (some of which suggest undetected psycholinguistic dominance in one language) which include frequency of usage and the affective values attached to one or the other language. The last variable, discussed again below, is interesting since it corroborates the conclusions of an earlier study (Minkowski 1928) in which 'language sentiments' were posited as independent variables equivalent in power with variables relating to early learning and frequency of subsequent usage.

Given this demonstrable evidence for various sorts of interference

phenomena in the linguistic and in some language-mediated cognitive behavior of bilinguals, we can now ask what is its cumulative effect in cognitive development and personality formation?

EARLY BILINGUALISM AND COGNITIVE DEVELOPMENT.

The language-acquiring child leaves something to be desired as a tractable subject; the experimental methods available for studying adult language behavior have a correspondingly limited utility with them. Most of our evidence for linguistic ontogeny is thus derived from detailed longitudinal studies, few in number however rich in the observational data recorded. It is therefore not surprising to find few references in the literature which deal with the simultaneous primary acquisition of two languages or very early "naturalistic" learning of a second language. Much of the relevant literature as was then available (e.g., Ronjat 1913) was reviewed by Leopold (1948); earlier programmatic statements of research problems associated with child bilingualism are contained in Epstein 1915 and Stern 1923. To his own paragon longitudinal study of 1949 should be added several studies subsequent to Leopold's 1948 survey; principal among these is a paper by Burling (1959) and an interesting study by Imedadze (1960), which arrive at opposite conclusions about the child's developmental progress in functionally separating his two linguistic systems: Burling arguing for chronic interference and Imedadze for early achieved separation. Despite the want of extensive observational data on early bilingualism, there are nevertheless many statements which suggest that it is detrimental even to language acquisition itself: e.g., Travis, Johnson, and Shover (1937) purport to demonstrate a susceptibility to stuttering in early bilinguals; Beckey (1942) claims that speech development is retarded by early bilingualism; Duncan (1950) discusses an acquired articulatory abnormality which she relates to functional conflict deriving from code-switching. Other studies, unfortunately few in number, have examined the sociolinguistic context of early bilingualism and adumbrate in their observations some of the major conclusions of this study; these include Braunhausen 1928; Covello 1937; Lambert 1956; McCarthy 1954; Sapon 1953; Tireman 1941, 1944.

We can summarize the output from much of the case-study research

dealing with bilingualism in the child: It is focussed on the readily observable phenomena of linguistic interference between and the separation of the two languages in the child's overt speech behavior. There has been almost no research into the development of correlated (but far less readily observable) language-based cognitive behavior such as concept formation. This is a glaring omission. For when we turn to the research dealing with the consequences of early bilingualism for later higher cognitive behavior, especially vis-à-vis "intelligence", we find an unmanageably vast body of literature. The remainder of this section will deal with the matters of measuring bilinguals' intelligence and of interpreting those measurements.

The terms 'cognitive development' and 'intelligence' here are used in a restricted sense. The former refers to what many authors call "intellectual growth" and which I take to mean as the "processing [of] environmental events [dependent] upon the translation of experience into symbolic form" (Bruner 1964: 13); that is, it refers to those cognitive activities (such as thinking, insight-learning, etc.) which depend upon language and the extraordinary and distinctively human capacity for symbolically-mediated learning and cultural transmission which is associated with it. The latter, 'intelligence', in this paper although not in all of the literature cited, will refer to one dimension of cognitive development: the realized intelligence level of verbal children (or young adults) as measured by various standardized intelligence-tests which relate actual performance to expected 'mental age' performance and chronological age. Intelligence will thus refer to capacities achieved at a certain age; it will not refer to innate intellectual potential.

The topic itself has been incidentally treated in a number of linguistically-oriented surveys of bilingualism, most notably in Christophersen 1948; Haugen 1956; Kainz 1956-62; Titone 1964; Vildomec 1963; and Weinreich 1953. The specific topic of 'bilingualism and intelligence' has been reviewed in several recent and bibliographically rich surveys: Darcy 1963; Jensen 1962; Jones 1959; Lambert 1963; Peal and Lambert 1962. This second category in turn includes extensive discussion of many of the "classic" studies (e.g., Johnson 1953; Jones 1959; Pintner and Arsenian 1937; Saer 1922, 1923; Smith 1932) as well as both older surveys and more recent replications (e.g., Arsenian 1937;

Darcy 1953; Hoffman 1934; Jones and Stewart 1961; Mitchell 1937; Morrison 1958; Pintner 1932; Sánchez 1934).

The results of four major surveys of the literature dealing with bilingualism and intelligence (viz., Darcy 1953, 1963; Jensen 1962; Peal and Lambert 1962) reveal that the majority of earlier studies stand in agreement on one point: that when somehow "comparable" groups of monolingual and bilingual children were contrasted on verbal (as well sometimes as on non-verbal) intelligence tests, that the bilinguals scored significantly lower. Not all, but a majority of the earlier studies, many of which appeared to be based on sound experimental research, reached this conclusion. However, a number of the more sophisticated earlier studies (e.g., Johnson 1953; Jones and Stewart 1951) also reported that retarded development was evident only in verbal intelligence tests, and that monlingual-bilingual differences for non-verbal tests were insignificant. Few studies proposed a null hypothesis about the relationship of IQ scores to bilingualism, although there are notable exceptions (e.g., Arsenian 1945; Hill 1936; O'Doherty 1958). Virtually none of the experimentally sophisticated studies proposed the converse, that early bilingualism produced any evidence of superior IQ ratings, with one important exception to be discussed below. Few studies of whatever category proposed definite hypotheses to account for the underlying cause of the bilingual children's lower scores, save to appeal to ill-defined notions about "mental confusion" and consequent retardation, derivative from the "unnatural" developmental task of acquiring two languages at the same time.

Haugen (1956, 1958) and Weinreich (1953), among others, anticipated the finding of a critical flaw in virtually all of the studies which concluded that early bilingualism directly caused subsequent lower intelligence: As Darcy (1963) and Peal and Lambert (1962) have now demonstrated, the allegedly matched monolingual and bilingual groups, were in fact not comparable along several extra-linguistic dimensions. Amost without exception, the monolingual groups in these studies (i.e., the children who gave significantly higher performances on standardized intelligence tests) were speakers of a sociolinguistically dominant language, dominant in the sense that it enjoyed greater prestige and greater communicative utility in the larger society from which the groups were selected. In the majority of these studies, it was further apparent

that the bilinguals, regardless of their proficiency in the dominant language, were also disadvantaged by socio-economic environmental factors specific to the lower status bicultural communities in which they were socialized. (In the United States, for example, this is typically the case of bilinguals who come from lower status immigrant enclaves in urban settings; cf. Bossard 1945; Covello 1937; Fishman et al. 1966; Haugen 1956. Frequently in this country the acculturative pressures on such bicultural communities include deleterious racist attitudes which become linked to any salient physical, cultural, or linguistic differences which distinguish the bicultural community from the larger Anglo-American society in which it is encysted; cf. Hempl 1898; Johnson 1951; Levy 1933.) That these sociolinguistic factors can and do profoundly affect cognitive development in general and verbal skills in particular cannot be doubted; see the research of Bernstein (e.g., 1961, 1964), John (e.g., 1963; and John and Goldstein 1964), and Lawton (e.g., 1963), to single out only a few of the relevant statements supportive of this generalization. Limitations of space prohibit further exposition and defense of the above summary assertion. But the author feels safe in insisting that the category of research referred to earlier (in which the monolingual groups are found to speak a sociolinguistically dominant language) has not taken into account all the variables which one must justifiably assume to be operative; and that those studies which followed through to conclude that bilingualism as a variable of itself produced intellectual deficit, are beyond the pale of responsible inquiry.

When we consider individual bilinguals or groups of bilinguals in sociolinguistic contexts where their bilingual behavior (and/or bicultural background) does not automatically ascribe them lower status or cultural marginality within a larger monolingual community, the picture changes dramatically. The conclusions we can draw from one of the best controlled studies in the literature (Peal and Lambert 1962) is quite surprising. For Peal and Lambert found in their contrastive comparison of carefully matched monolingual and bilingual groups, that bilingualism is associated with and may in fact be facilitative of significantly superior performances on both verbal and non-verbal intelligence tests. A portion of the experimenters' interpretive conclusions is interesting: "The picture that emerges of the French-English bilingual in Montreal is that of a

youngster whose wider experiences in two cultures have given him advantages which a monolingual does not enjoy. Intellectually his experience with two language systems seems to have left him with a mental [cognitive] flexibility, a superiority in concept formation, and a more diversified set of mental [cognitive] abilities, in the sense that the patterns of abilities developed by bilinguals were more heterogeneous... In contrast, the monolingual appears to have a more unitary structure of intelligence which he must use for all types of intellectual tasks" (Peal and Lambert 1962: 20). Peal and Lambert's attempts to explain their surprising research results center on hypotheses (suggested by Leopold 1949 and independently corroborated by Imedadze 1960) relating to the early bilingual's being reinforced "to conceptualize environmental events in terms of their general properties without reliance on their [being encoded into] linguistic symbols" (Peals and Lambert 1962: 14). This "detaching" of signifiés from signifiants apparently confers manifold advantages. While the relevance of this hypothesis to the bilingual's observed adroitness at the reorganization tasks involved in non-verbal intelligence tests is obvious, the relevance to his performance on verbal tests is no less oblique: "At the very first stage of speech development in the bilingual child, when he first encounters the fact that an object can have two names, a separation of object [signifié] and name [signifiant] begins. A word, when freed from its referent, can easily become the object of special attention" (Imedadze 1960: 67).

EARLY BILINGUALISM AND PERSONALITY FORMATION.

We may now ask whether the bilingual's ventures in biculturalism predispose him to psychopathology, or whether his bilingualism facilitates emotional adjustment in the different social niches into which his language skills allow him entry. We have two disparate bodies of evidence: (1) one from studies of the relative differences in emotional adjustment in populations, comparing its monolingual and bilingual members; and (2) the other from individual psychiatric case-studies in which the patient shows an adjustive failure associated with his bilingual background. Here, unfortunately, there are no surveys to aid in formulating the generalizations which follow.

The popular consensus about the effects of early bilingualism on personality integration and emotional adjustment is, again, that this

bilingual experience is detrimental. The literature abounds in evidence which purports to show that the early bilingual does not function well as an older child or adult, and that he is especially subject to failures in conflict resolution characterized by a symptomatology for what we loosely call "alienation" or "anomie". If we take the better of the bad pronouncements on these matters, we find assertions such as Christophersen's (1948) that, where culture conflict prevails in a bilingual bicultural community, the bilingual is predisposed toward schizophrenia. But Christophersen's is an interesting claim since it reveals as its rationale that notion which many of these pronouncements share, viz., the assumption of an implication chain: two languages implies two personality structures implies psychodynamic conflict.

This implication chain can be examined critically at either end. For the first alleged entailment, there is only one revelant study that the author is aware of: In a sample of proficient French-English bilingual speakers, Ervin (1964) discovered that strikingly different protocols were elicited by the T.A.T. instrument from the same bilingual subject, and that the differences were correlated with which language was used in the elicitation procedures. In discussing the results of her study, Ervin mentions several obvious factors which might be operative in producing the contrasts in T.A.T. content which were correlated with language choice. One is simply that her bilingual subjects had systematically different recall in their two languages, relating to the differential personal experiences, verbal preoccupations, and cultural values associated with the different social contexts in which each language was acquired and later used. This correctly implies that Ervin's subjects were coordinate bilinguals. And at least for coordinate bilinguals, with their separated linguistic systems and sociolinguistic backgrounds, we must provisionally concede that they may in fact have "two personalities", a concession which would at any rate be forced by the psychiatric evidence cited below.

Despite the absence of any concrete evidence concerning them, it is interesting to speculate whether compound bilinguals can similarly be said to have "two personalities". In the sense here implied, the author intuits that they have not, and predicts that a comparable projective test experiment with compound subjects would result in more unitary responses.

If Ervin's study does permit us to infer two personality structures for some proficient bilinguals, we must then examine the second entailment: Granted differential encoding of past experiences in two languages, do the bilingual's two experientially diverged personality structures perforce predispose him toward or actually induce conflict crises or psychopathology of any type? If we turn from individual to group psychodynamics, we can also ask whether this experience produces culture marginality.

Clinical evidence (much of it admittedly anecdotal) should incline one to the view that at least coordinate bilinguals have available a formidable defense mechanism denied monolinguals, viz. code-switching. Consider some bilingual responses: It is apparent that repression can be reinforced if the bilingual code-switches into the language with which less traumatic past experience and unresolved conflict is associated. Superego control can be weakened by the bilingual's acting out in the ontologically less charged language (without his necessarily becoming a psychopath). It is not facetious to add that this defense mechanism may pose an obstacle to psychotherapy or psychoanalysis, but that this problem is not so much the bilingual patient's as it is the psychiatrist's. The possible responses mentioned above, by themselves in many naturalistic social settings, could be highly adaptive functionally. It is the bilingual's exploitation of this defense mechanism which offers part of the explanation for the commonplace ambivalent stereotype about bilingual behavior, viz., that it is "chameleon-like". Moreover, if code-switching is the potentially adaptive device this author believes it to be, it might account for the further impression that there is a low incidence of reactive schizophrenia in bilingual populations, despite epidemiological studies (e.g., Hollingshead and Redlich 1958) which reveal a relatively higher incidence of schizophrenic patients from lower socio-economic status groups (which in the United States include significant numbers of early bilinguals).

The analysts' problem mentioned in the paragraph above is not a trivial one. There does exist a scattered literature on the topic of choice of language for the analysis of the bilingual patient; studies perused by the author include Buxbaum 1949; Greenson 1950; Krapf 1955; Lagache 1956; Stengel 1939; Velikovsky 1934. These papers agree that the prognosis for successful treatment may devolve upon the analyst's decision which language to use, and when, in his attempts to induce the

patient to symbolize early and even preverbal experience. Reexamining the individual case histories reported on, it appears that only two or three of the analysands described in the above papers were compound bilinguals, whereas the majority were clearly coordinate. Interestingly enough, the dysfunctional symptomatology of the former seemed to be more severe and the actual choice of language for therapeutic treatment. This last observation is my own and is impressionistic; there is insufficient evidence to offer it as a generalization. But it is deserving of further inquiry, since the code-switching defense mechanism would logically seem adaptive only for the coordinate bilingual with his differentiated content system and separated sociolinguistic background.

There are many other at present unanswerable questions which require further research. The most striking relate to the underlying causes of the "alienation" and "anomie" anxiety-syndromes to which many bilinguals with bicultural backgrounds do seem susceptible. It is not at all clear at this time of writing whether the critical factors are exclusively sociolinguistic. Especially among those of my anthropology colleagues whom I have consulted, there is a conviction that a linguistic-cognitive etiology is basic.[2] Theirs is not the simplistic appeal to the bilingual's "having too much in his head", but a more sophisticated argument based on concepts of cognitive-perceptual incongruence: these concepts would include what psychologists discuss in terms of 'contamination of categories', expectancy disconfirmations involving 'double-bind' and 'cognitive dissonance', and 'perceptual disparity'. If any of these concepts are relevant here, there are a number of interesting questions which might be posed. Is there, for instance, a limit on the degree of cultural difference between two societies affecting the formation of a 'fused' bilingual-bicultural community from which we could expect compound bilinguals? (To pose the question in another way: Is the reason that the compound bilingual is in fact a <u>rara avis</u> related simply to a limitation on the number of bilingual-bicultural combinations possible before cultural disparity enjoins 'separated' contexts for language acquisition and usage?)

We return here to the question posed at the beginning of this section. Implicit arguments to the contrary from clinical psychology notwithstanding, the majority sentiment is still that early bilingualism can and frequently does produce emotional disorders in the child who is

subjected to this socialization experience. If we examine those studies in which, again, somehow "comparable" groups of monolingual and bilingual speakers are contrasted, we do find a significantly higher incidence of maladjustment among the bilinguals (see e.g., Spoerl 1944, 1946). But in investigating emotional adjustment, unlike testing for intelligence, life-history information about the subject has long been recognized as an analytic prerequisite. And this information is immediately revealing of an essentially sociolinguistic basis for many of the observed emotional problems of the bilinguals studied. There are many corroboratory statements supporting this conclusion; see e.g., Arsenian 1945; Bossard 1945; Devereux and Loeb 1943; Levy 1933; Raubicheck 1934. Thus if we critically examine bonafide cases of bilingual psychopathology, where the individual or group has been competently diagnosed, some variation on one common etiological theme emerges: This is basically a crisis in social and personal identity engendered by antagonistic acculturative pressures directed on a bicultural community by a sociologically dominant monolingual society within which the bicultural community is stigmatized as socially inferior and to which its bilingualism (historically viewed) is itself an assimilative response. The particular form which the conflict assumes varies; in some cases, cross-generation (parent/child) conflict is as destructive as that exerted by the conventionalized conflict between the monolingual and bilingual communities (see Fishman et al. 1966).

FOOTNOTES

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BIBLIOGRAPHY

ARSENIAN, A. Bilingualism and Mental Development. New York: Teachers College (Columbia University), 1937.

ARSENIAN, A. "Bilingualism in the post-war world", Psychological Bulletin 42: 65-86 (1945).

BARKER, G. C. "Social functions of language in a Mexican-American community", Acta Americana 5: 185-202 (1947).

BARKER, G. C. "Growing up in a bilingual community", The Kiva 17: 17-32 (1951).

BECKEY, R. E. "A study of certain factors related to retardation of speech", Journal of Speech and Hearing Disorders 7: 223-49 (1942).

BERNSTEIN, B. "Aspects of language and language learning in the genesis of social process", Journal of Child Psychology and Psychiatry 1: 313-24 (1961).

BERNSTEIN, B. Elaborated and restricted codes: Their social origins and some consequences. In: J. J. Gumperz and D. Hymes, eds., The Ethnography of Communication (= American Anthropologist, Special Publication, Vol. 66, No. 6, Pt. 2, 1964), pp. 55-69.

BOSSARD, J. H. S. "The bilingual individual as a person — linguistic identification with status", American Sociological Review 10: 699-709 (1945).

BOUMAN, A. C. "Das Problem der inneren Sprachform und die Psychoanalyse", Lingua 3: 147-61 (1952/53).

BRAIN, (LORD). Speech Disorders. (2nd. Ed.) London: Butterworth, 1965.

BRAUNHAUSEN, N. Le bilinguisme et la famille. In: Le bilinguisme et l'éducation, pp. 87-94. Genève, Luxemburg: Bureau International d'Éducation, 1928

BROWN, R. Social Psychology. Glencoe, Ill.: Free Press, 1965.

BROWN, R., and A. GILMAN. The pronouns of power and solidarity. In: T. A. Sebeok, ed., Style in Language, pp. 253-76. Cambridge, Mass.: Technology Press and Wiley, 1960.

BRUNER, J. S. "The course of cognitive growth", American Psychologist 19: 1-15 (1964).

BURLING, R. "Language development of a Garo and English speaking child", Word 15: 45-68 (1959).

BUXBAUM, E. "The role of a second language in the formation of ego and superego", Psychoanalytic Quarterly 18: 279-89 (1949).

BYCHOWSKI, Z. "Über die Restitution der nach einem Schädelschuss verlorenen Umgangssprache bei einem Polyglotten", Monatschrift für Psychiatrie und Neurologie 45: 183-201 (1919).

CAMPBELL, D. T. Distinguishing differences of perception from failures of communication in cross-cultural studies. In: F. S. C. Northrop and H. H. Livingston, eds., Cross-Cultural Understanding: Epistemology in Anthropology, pp. 308-36. New York: Harper & Row, 1964.

CARROLL, J. B. "Linguistic relativity, contrastive linguistics, and language learning", International Review of Applied Linguistics in Language Teaching 1: 1-20 (1963).

CHRISTOPHERSEN, P. Bilingualism. London: Methuen, 1948.

COVELLO, L. Language as a factor in social adjustment. In: F. J. Brown and J. S. Roucek, eds., Our Racial and National Minorities, pp. 681-96. New York: Prentice-Hall, 1937.

DARCY, N. T. "A review of the literature on the effects of bilingualism upon the measurement of intelligence", Journal of Genetic Psychology 82: 21-57 (1953).

DARCY, N. T. "Bilingualism and the measurement of intelligence: Review of a decade of research", Journal of Genetic Psychology 103: 259-82 (1963).

DE BOER, J. J. "Some sociological factors in language development", Elementary English 29: 482-93 (1952).

DE REUCK, A. V. S., and M. O'CONNOR, eds. Disorders of Language. London: J. & A. Churchill Ltd., 1964.

DE SAUSUURE, F. Cours de linguistique générale. Paris: Payot, 1915.

DIEBOLD, A. R., Jr. "Incipient bilingualism", Language 36: 97-112 (1961).

DIEBOLD, A. R., Jr. Code-switching in Greek-English bilingual speech. In: E. D. Woodworth and R. J. dePrieto, eds., Report of the Thirteenth Annual Roundtable Meeting on Linguistics and Language Studies (= Georgetown University Monograph Series on Languages and Linguistics, No. 15), pp. 53-62. Washington: Georgetwon University Press, 1963.

DIEBOLD, A. R., Jr. A survey of psycholinguistic research, 1954-1964. In: C. E. Osgood and T. A. Sebeok, eds., Psycholinguistics: A Survey of Theory and Research Problems (2nd Ed.), pp. 205-91. Bloomington: Indiana University Press, 1965.

DOOB, L. W. "The effect of language on verbal expression and recall", American Anthropologist 59: 88-100 (1957).

DUNCAN, M. H. Children of foreign tongues. In: W. Johnson, ed., Speech Problems of Children, pp._____. New York: Grune and Stratton, 1950.

EPSTEIN, I. La pensée et la polyglossie. Lausanne: Payot et Cie., 1915.

ERVIN, S. M. [1961a] "Semantic shift in bilinguals", American Journal of Psychology 74: 233-41 (1961).

ERVIN, S. M. [1961b] "Learning and Recall in bilinguals", American Journal of Psychology 74: 446-51 (1961).

ERVIN, S. M. "Language and TAT content in bilinguals", Journal of Abnormal and Social Psychology 68: 500-07 (1964).

ERVIN, S. M., and C. E. OSGOOD. Second language learning and bilingualism. In: C. E. Osgood and T. A. Sebeok, eds., Psycholinguistics: A Survey of Theory and Research Problems (= Indiana University Publications in Anthropology and Linguistics, Memoir 10), pp. 139-46.

FILLENBAUM, S., L. V. JONES, and J. M. WEPMAN. "Some linguistic features of speech from aphasic patients", Language and Speech 4: 91-108 (1961).

FISHMAN, J. A. "A Systematization of the Whorfian hypothesis", Behavioral Science 4: 323-39 (1960).

FISHMAN, J. A., et al. Language Loyalty in the United States. The Hague: Mouton & Co., 1966.

GOLDSTEIN, K. "L'analyse de l'aphasie et l'étude de l'essence du langage", Journal de psychologie normale et pathologique 30: 430-96 (1933).

GOLDSTEIN, K. Language and Language Disturbances. New York: Grune and Stratton, 1948.

GREENSON, R. R. "The mother tongue and the mother", International Journal of Psychoanalysis 31: 18-23 (1950).

GUMPERZ, J. J. "Types of linguistic communities", Anthropological Linguistics 4 (1): 28-40 (1962).

GUMPERZ, J. J. Linguistic and social interaction in two communities. In: J. J. Gumperz and D. Hymes, eds., The Ethnography of Communication (= American Anthropologist, Special Publication, Vol. 66, No. 6, Pt. 2, 1964), pp. 137-53.

HAUGEN, E. "The analysis of linguistic borrowing", Language 26: 210-31 (1950).

HAUGEN, E. Bilingualism in the Americas (= Publications of the American Dialect Society, No. 26). University, Alabama: University of Alabama Press, 1956.

HAUGEN, E. Language contact. In: E. Sivertsen, ed., Proceedings of the Eighth International Congress of Linguists, pp. 772-85. Oslo: Oslo University Press, 1958.

HAUGEN, E. "Dialect, language, nation", American Anthropologist 68: 922-35 (1966).

HEMPL, G. "Language rivalry and speech differentiation in the case of race mixture", Transactions of the American Philological Society 29: 31-47 (1898).

HERMAN, S. N. "Explorations in the social psychology of language choice", Human Relations 14: 149-64 (1961).

HERSCHMANN, H., and O. PÖTZL. "Bemerkungen über die Aphasie der Polyglotten", Neurologisches Central-Blatt 39: 114-20 (1920).

HILL, H. S. "The effects of bilingualism on the measured intelligence of elementary school children of Italian parentage", Journal of Experimental Education 5: 75-79 (1936).

HOFSTAETTER, P. R. "Über Ähnlichkeit", Psyche 9: 54-80 (1955).

HOLLINGSHEAD, A. B., and F. C. REDLICH. Social Class and Mental Illness: A Community Study. New York: Wiley, 1958.

IMEDADZE, N. V. "K psikhologicheskoy prirode rannego dvuyazychiya" [On the psychological nature of early bilingualism], Voprosy Psikhologii 6: 60-68 (1960).

JAKOBOVITS, L., and W. E. LAMBERT. "Semantic satiation among bilinguals", Journal of Experimental Psychology 62: 576-82 (1961).

JENSEN, J. V. "Effects of early bilingualism", Elementary English 39: 132-43; 358-66 (1962).

JOHN, V. P. "The intellectual development of slum children: Some preliminary findings", American Journal of Orthopsychiatry 33: 813-22 (1963).

JOHN, V. P., and L. S. GOLDSTEIN. "The social context of language acquisition", Merrill-Palmer Quarterly 10: 265-76 (1964).

JOHNSON, G. B., Jr. "The relationship existing between bilingualism and racial attitudes", Journal of Educational Psychology 42: 357-65 (1951).

JOHNSON, G. B., Jr. "Bilingualism as measured by a reaction-time technique and the relationship between a language and a non-language intelligence quotient", Journal of Genetic Psychology 82: 3-9 (1953).

JONES, W. R. "A critical study of bilingualism and nonverbal intelligence", British Journal of Educational Psychology 30: 71-76 (1960).

JONES, W. R., and W. A. STEWART. "Bilingualism and verbal intelligence", British Journal of Psychology (Statistical Section) 4: 3-8 (1951).

KAINZ, F. [1956-1965] Psychologie der Sprache. 5 Vols. Stuttgart: Ferdinand Enke Verlag, 1956-65.

KAUDERS, O. "Über polyglotte Reaktionen bei einer sensorischen Aphasie", Zeitschrift für die gesamte Neurologie und Psychiatrie 122: 651-56 (1929).

KOLERS, P. A. "Interlingual word associations", Journal of Verbal Learning and Verbal Behavior 2: 291-300 (1963).

KRAPF, E. E. "The choice of language in polyglot psychoanalysis", Psychoanalytic Quarterly 24: 343-57 (1955).

LAGACHE, D. "Sur le polyglottisme dans l'analyse", La psychanalyse 1: 167-78 (1956).

LAMBERT, W. E. "Measurement of the linguistic dominance of bilinguals", Journal of Abnormal and Social Psychology 50: 197-200 (1955).

LAMBERT, W. E. "Developmental aspects of second-language learning", Journal of Social Psychology 43: 83-104 (1956).

LAMBERT, W. E. "Psychological approaches to the study of language", Modern Language Journal 67: 51-62; 114-21 (1963).

LAMBERT, W. E., J. HAVELKA, and C. CROSBY. "The influence of language-acquisition contexts on bilingualism", Journal of Abnormal and Social Psychology 56: 239-44. (1958).

LAMBERT, W. E., J. HAVELKA, and R. C. GARDNER. "Linguistic manifestations of bilingualism", American Journal of Psychology 72. 77-82 (1959).

LAMBERT, W. E., and S. FILLENBAUM. "A pilot study of aphasia among bilinguals", Canadian Journal of Psychology 13: 28-34 (1959).

LAMBERT, W. E., and N. MOORE. "Word-associations responses: Comparisons of American and French monolinguals with Canadian monolinguals and bilinguals", Journal of Personality and Social Psychology 3: 313-20 (1966).

LANE, H. L. "Some differences between first and second language learning", Language Learning 12: 1-14 (1962).

LAWTON, D. "Social class differences in language development", Language and Speech 6: 109-19 (1963).

LEISCHNER, A. "Über die Aphasie der Mehrsprachigen", Archiv für Psychiatrie und Nervenkrankheiten 180: 731-75 (1948).

LENNEBERG, E. H. "Language disorders in childhood", Harvard Educational Review 34: 152-77 (1964).

LENNEBERG, E. H. Speech development: Its anatomical and physiological concomitants. In: E. C. Carterette, ed., Speech, Language, and Communication (= Brain Function, Vol. 3), pp. 37-66. Berkeley and Los Angeles: University of California Press, 1966.

LENNEBERG, E. H., and J. M. ROBERTS. The Language of Experience (= Indiana University Publications in Anthropology and Linguistics, Memoir 13, 1956).

LEOPOLD, W. F. "The study of child language and infant bilingualism", Word 4: 1-17 (1948).

LEOPOLD, W. F. Speech Development of a Bilingual Child: A Linguist's Record. 4 Vols. Evanston, Ill.: Northwestern University Press, 1949. [1939-1949]

LEVY, J. "Conflicts of cultures and children's maladjustment", Mental Hygiene 17: 41-50 (1933).

MACKEY, W. F. "The description of bilingualism", Canadian Journal of Linguistics 7: 51-85 (1962).

MACKEY, W. F. "Bilingual interference: Its analysis and measurement", Journal of Communication 15: 239-49. (1965).

MACKEY, W. F. "The measurement of bilingual behavior", Canadian Psychologist 7: 75-92 (1966).

MACLAY, H., and E. E. WARE. "Cross-cultural use of the semantic differential", Behavioral Science 6: 185-90 (1961).

MARX, O. M. "Aphasia studies and language theory in the 19th Century", Bulletin of the History of Medicine 40: 328-49 (1966).

McCARTHY, D. A. "Language disorders and parent-child relationships", Journal of Speech and Hearing Disorders 19: 514-23 (1954).

MINKOWSKI, M. "Klinischer Beitrag zur Aphasie bei Polyglotten", Archives suisses de neurologie et de psychiatrie 21: 43-72 (1927).

MINKOWSKI, M. "Sur un cas d'aphasie chez un polyglotte", Revue neurologique 35: 361-66 (1928).

MITCHELL, A. J. "The effects of bilingualism in the measurement of intelligence", Elementary School Journal 38: 29-37 (1937).

MORRISON, J. R. "Bilingualism: Some psychological aspects", Advancement of Science 56: 287-90 (1958).

O'DOHERTY, E. F. "Bilingualism: Educational aspects", Advancement of Science 56: 282-86 (1958).

OSGOOD, C. E. [1963a] Psycholinguistics. In: S. Koch, ed., Psychology: A Study of a Science, Vol. 6, pp. 244-316. New York: McGraw Hill, 1963.

OSGOOD, C. E. [1963b] "On understanding and creating sentences", American Psychologist 18: 735-51 (1963).

OSGOOD, C. E. Contextual control in sentence understanding and creation. In: E. C. Carterette, ed., Speech, Language, and Communication (= Brain Function, Vol. 3), pp. 201-29. Berkeley and Los Angeles: University of California Press, 1966.

PANETH, E. An Investigation into Conference Interpreting. Mimeo. [Unpublished M.A. dissertation; London College] London, 1957.

PEAL, E., and W. E. LAMBERT. The Relation of Bilingualism to Intelligence (= Psychological Monographs, No. 546, 1962).

PIERIS, R. "Bilingualism and cultural marginality", British Journal of Sociology 2: 328-39 (1951).

PINTNER, R. "The influence of language background on intelligence tests", Journal of Social Psychology 3: 235-40 (1932).

PINTNER, R., and S. ARSENIAN. "The relation of bilingualism to verbal intelligence and school adjustment", Journal of Educational Research 31: 255-63 (1937).

PITRES, A. "Étude sur l'aphasie chez les polglottes", Revue de médecine 15: 889-98 (1895).

PÖTZL, O. "Aphasie und Mehrsprachigkeit", Zeitschrift für die gesamte Neurologie und Psychiatrie 124: 145-62 (1930).

RAUBICHECK, L. "The psychology of multilingualism", Volta Review 36: 17-20 (1934).

ROMNEY, A. K., and R. G. D'ANDRADE, eds. Transcultural Studies in Cognition (= American Anthropologist, Special Publication, Vol. 66, No. 3, Pt. 2, 1964.)

RONJAT, J. Le développement du langage observé chez un enfant bilingue. Paris: Champion, 1913.

SAER, D. J. "An inquiry into the effect of bilingualism upon the intelligence of young children", Journal of Experimental Pedagogy 6: 232-40; 266-74 (1922).

SAER, D. J. "The effect of bilingualism on intelligence", British Journal of Psychology 14: 25-38 (1923).

SAPON, S. M. "A methodology for the study of socio-economic differentials in linguistic phenomena", Studies in Linguistics 11: 57-68 (1953).

SÁNCHEZ, G. I. "Bilingualism and mental measures", Journal of Applied Psychology 18: 765-72 (1934).

SCHUELL, H., and J. J. JENKINS. "The nature of language deficit in aphasia", Psychological Review 66: 45-67. (1959).

SMITH, F. "Bilingualism and mental development", British Journal of Psychology 13: 270-83 (1923).

SOFFIETTI, J. P. "Bilingualism and biculturalism", Journal of Educational Psychology 46: 222-27 (1955).

SPOERL, D. T. "The academic and verbal adjustment of college age bilingual students", Journal of Genetic Psychology 64: 139-57 (1944).

SPOERL, D. T. "Bilinguality and emotional adjustment", Journal of Abnormal and Social Psychology 38: 37-57 (1946).

STENGEL, E. "On learning a new language", International Journal of Psychoanalysis 20: 471-79 (1939).

STENGEL, E., and J. ZELMANOWICZ. "Über polyglotte motorische Aphasie", Zeitschrift für die gesamte Neurologie und Psychiatrie 149: 292-311 (1933).

STERN, W. "Über Zweisprachigkeit in der frühen Kindheit", Zeitschrift für angewandte Psychologie 30: 168-72 (1923).

TANAKA, Y., T. OYAMA, and C. E. OSGOOD. "A cross-cultural and cross-concept study of the generality of semantic space", Journal of Verbal Learning and Verbal Behavior 2: 392-405 (1963).

TIREMAN, L. S. "Bilingual children", Journal of Educational Research 11: 340-52 (1941).

TIREMAN, L. S. "Bilingual children, II", Journal of Educational Research 14: 273-78 (1944).

TITONE, R. La psicolinguistica oggi. Zürich: Pas-Verlag, 1964.

TRAVIS, L., W. JOHNSON, and J. SHOVER. "The relation of bilingualism to stuttering", Journal of Speech Disorders 2: 185-89 (1937).

TRIANDIS, H. C. Cultural influences upon cognitive processes. In: L. Berkowitz, ed., Advances in Experimental Social Psychology, Vol. I, pp. 1-48. New York: Academic Press, 1964.

TRIANDIS, H. C., and C. E. OSGOOD. "A comparative factorial analysis of semantic structures in monolingual Greek and American college students", Journal of Abnormal and Social Psychology 57: 187-96 (1958).

VELIKOVSKY, I. "Can a newly acquired language become the speech of the unconscious? Word-plays in the dreams of Hebrew thinking persons", Psychoanalytic Quarterly 21: 329-35 (1934).

VILDOMEC, V. Multilingualism. Leyden: A. W. Sythoff, 1963.

WEINREICH, U. Languages in Contact: Findings and Problems (= Publications of the Linguistic Circle of New York, No. 1, 1953).

WEINREICH, U. "On the description of phonic interference", Word 13: 1-11 (1957).

WEINREICH, U. Research frontiers in bilingualism studies. In: E. Sivertsen, ed., Proceedings of the Eighth International Congress of Linguists, pp. 786-97. Oslo: Oslo University Press, 1958.

WEISENBURG, T., and K. E. McBRIDE. Aphasia: A Clinical and Psychological Study. New York: The Commonwealth Fund, 1935.

WEPMAN, J. M., and L. V. JONES. Studies in aphasia: A psycholinguistic method and case study. In: E. C. Carterette, ed., Speech, Language, and Communication (= Brain Function, Vol. 3) pp. 141-72. Berkeley and Los Angeles: University of California Press, 1966.